

WHAT IS CLAIMED IS:

1. A transmission power control apparatus  
for a wireless communication apparatus for reducing  
5 a power value of a signal input to a power amplifier  
to the maximum allowable input power value of said  
power amplifier or below, said transmission power  
control apparatus comprising:

10 a setting part for setting a transmission  
power upper limit value of a call according to a  
circuit type of said call; and

15 a power reducing part for reducing  
transmission power for said call to said  
transmission power upper limit value or below.

20 2. The transmission power control  
apparatus as claimed in claim 1, wherein said  
setting part sets said transmission power upper  
limit value according to a degree of delay which can  
be allowed for said circuit type.

25 3. The transmission power control  
apparatus as claimed in claim 1, wherein said  
30 setting part sets a first upper limit value for a  
call of a packet switching type or a second upper  
limit value for a call of a circuit switching type.

35 4. The transmission power control

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apparatus as claimed in claim 3, wherein said first upper limit value is smaller than said second upper limit value.

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5. The transmission power control apparatus as claimed in claim 3, wherein said setting part monitors occurrence of over-input to said power amplifier, and sets another transmission power upper limit value when said over-input occurs.

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6. The transmission power control apparatus as claimed in claim 5, wherein, said setting part reduces said first upper limit value by a first predetermined ratio when said over-input to said power amplifier occurs, and said setting part increases said first upper limit value by a second predetermined ratio which is lower than said first predetermined ratio when said over-input to said power amplifier does not occur.

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7. The transmission power control apparatus as claimed in claim 1, wherein said setting part monitors occurrence of over-input to said power amplifier, and sets another transmission power upper limit value when said over-input occurs.

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8. The transmission power control apparatus as claimed in claim 1, wherein said setting part monitors occurrence of call loss, and  
5 sets another transmission power upper limit value when said call loss occurs.

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9. A transmission power control apparatus for a wireless communication apparatus for reducing a power value of a signal input to a power amplifier to the maximum allowable input power value of said  
15 power amplifier or below, said transmission power control apparatus comprising:

an SIR determining part for determining a control target SIR according to a circuit type of a call;

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a target SIR setting part for sending said control target SIR to a communication station corresponding to said call.

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10. The transmission power control apparatus as claimed in claim 9, wherein said SIR determining part sets said control target SIR  
30 according to a degree of delay which can be allowed for said circuit type.

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11. The transmission power control apparatus as claimed in claim 9, wherein said SIR

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determining part sets a first control target SIR for a call of a packet switching type or a second control target SIR for a call of a circuit switching type.

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12. The transmission power control apparatus as claimed in claim 11, wherein said first control target SIR is smaller than said second control target SIR.

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13. The transmission power control apparatus as claimed in claim 11, wherein said SIR determining part monitors occurrence of over-input to said power amplifier, and sets another control target SIR when said over-input occurs.

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14. The transmission power control apparatus as claimed in claim 13, wherein, said SIR determining part reduces said first control target SIR by a first predetermined ratio when said over-input to said power amplifier occurs, and said SIR determining part increases said first control target SIR by a second predetermined ratio which is lower than said first predetermined ratio when said over-input to said power amplifier does not occur.

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15. The transmission power control  
apparatus as claimed in claim 9, wherein said SIR  
determining part monitors occurrence of over-input  
5 to said power amplifier, and sets another control  
target SIR when said over-input occurs.

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16. The transmission power control  
apparatus as claimed in claim 9, wherein said SIR  
determining part monitors occurrence of call loss,  
and sets another control target SIR when said call  
15 loss occurs.

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17. The transmission power control  
apparatus as claimed in claim 1, wherein said  
transmission power control apparatus is provided in  
a base station of a wireless communication system.

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18. The transmission power control  
apparatus as claimed in claim 9, wherein said  
30 transmission power control apparatus is provided in  
a base station of a wireless communication system.

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19. A mobile station for communicating  
with a base station, said base station comprising:

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a part for comparing a received SIR with a target SIR which is stored in said base station, and sending transmission power control information to said base station according to the comparing result;

5 a part for receiving a control target SIR from said base station, and setting said control target SIR as a new target SIR to be compared with said received SIR;

10 wherein said base station includes a transmission power control apparatus for reducing a power value of a signal input to a power amplifier to the maximum allowable input power value of said power amplifier or below, said transmission power control apparatus comprising:

15 an SIR determining part for determining said control target SIR according to a circuit type of a call;

a target SIR setting part for sending said control target SIR to said mobile station.

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20. A transmission power control method  
25 used for a wireless communication apparatus for reducing a power value of a signal input to a power amplifier to the maximum allowable input power value of said power amplifier or below, said transmission power control method comprising the steps of:

30 setting a transmission power upper limit value for a call according to a circuit type of said call; and

reducing transmission power for said call to said transmission power upper limit value or  
35 below.

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21. The transmission power control method  
as claimed in claim 20, wherein said transmission  
5 power upper limit value is set according to a degree  
of delay which can be allowed for said circuit type.

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22. The transmission power control method  
as claimed in claim 20, wherein a first upper limit  
value for a call of a packet switching type or a  
15 second upper limit value for a call of a circuit  
switching type is set as said transmission power  
upper limit value.

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23. The transmission power control method  
as claimed in claim 22, wherein said first upper  
limit value is smaller than said second upper limit  
value.

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24. The transmission power control method  
30 as claimed in claim 22, wherein another transmission  
power upper limit value is set when said over-input  
to said power amplifier occurs.

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25. The transmission power control method

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as claimed in claim 24, comprising the steps of:

reducing said first upper limit value by a first predetermined ratio when said over-input to said power amplifier occurs;

5 increasing said first upper limit value by a second predetermined ratio which is lower than said first predetermined ratio when said over-input to said power amplifier does not occur.

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26. The transmission power control method as claimed in claim 20, wherein another transmission power upper limit value is set when over-input to said power amplifier occurs.

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27. The transmission power control method as claimed in claim 20, wherein another transmission power upper limit value is set when call loss occurs.

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28. A transmission power control method used for a wireless communication apparatus for reducing a power value of a signal input to a power amplifier to the maximum allowable input power value of said power amplifier or below, said transmission power control method comprising the steps of:

30 determining a control target SIR according to a circuit type of a call; and

35 sending said control target SIR to a communication station corresponding to said call.

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5           29. The transmission power control method  
as claimed in claim 28, wherein said control target  
SIR is set according to a degree of delay which can  
be allowed for said circuit type.

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          30. The transmission power control method  
as claimed in claim 28, wherein a first control  
15 target SIR for a call of a packet switching type or  
a second control target SIR for a call of a circuit  
switching type is set.

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          31. The transmission power control method  
as claimed in claim 30, wherein said first control  
target SIR is smaller than said second control  
25 target SIR.

30           32. The transmission power control method  
as claimed in claim 30, wherein another control  
target SIR is set when over-input to said power  
amplifier occurs.

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33. The transmission power control method as claimed in claim 32, comprising the steps of:

reducing said first control target SIR by a first predetermined ratio when said over-input to said power amplifier occurs;

increasing said first control target SIR by a second predetermined ratio which is lower than said first predetermined ratio when said over-input to said power amplifier does not occur.

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34. The transmission power control method as claimed in claim 28, wherein another control target SIR is set when over-input to said power amplifier occurs.

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35. The transmission power control method as claimed in claim 28, wherein another control target SIR is set when call loss occurs.

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36. A transmission power control apparatus for a wireless communication apparatus for reducing a power value of a signal of calls input to a power amplifier to the maximum allowable input power value of said power amplifier or below, said transmission power control apparatus comprising:

a classifying part for classifying calls into a plurality of groups;

a power reducing part for reducing a power

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value individually for each group such that a power value of said calls is equal to or below the maximum allowable input power value of said power amplifier.

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37. The transmission power control apparatus as claimed in claim 36, wherein said power reducing part sets an upper limit value of power for each group, and reduces a power value to said upper limit value or below for each group.

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38. The transmission power control apparatus as claimed in claim 37, wherein said classifying part classifies said calls according to degree of delay which is allowed by a circuit type of each call.

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39. The transmission power control apparatus as claimed in claim 37, wherein said classifying part classifies said calls into a group of a circuit switching type and a group of a packet switching type.

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40. The transmission power control apparatus as claimed in claim 39, wherein said upper limit value for a group of said packet switching

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type is smaller than said upper limit value for a group of said circuit switching type.

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41. The transmission power control apparatus as claimed in claim 39, wherein said power reducing part reduces only a power value of a group of said packet switching type.

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42. The transmission power control apparatus as claimed in claim 37, wherein the number of said plurality of groups and said upper limit value for each group are changed according to types of said calls.

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43. The transmission power control apparatus as claimed in claim 36, wherein said classifying part assigns priority for each call according to circuit characteristics of said each call, and said power reducing part reduces a power value of a call according to said priority.

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44. The transmission power control apparatus as claimed in claim 43, wherein said classifying part assigns said priority such that the larger a degree of delay, which is allowed by said

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call is, the lower said priority is, and,

said power reducing part reduces each power value of a part of calls in ascending order of said priority such that a power value of calls input to said power amplifier is equal to or below the maximum allowable input power value of said power amplifier.

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45. The transmission power control apparatus as claimed in claim 44, wherein said power reducing part does not reduce a power value of a call which has priority within predetermined levels from the highest priority.

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46. A base station in a wireless communication system, said base station comprising:

a transmission power control apparatus for reducing a power value of a signal of calls input to a power amplifier to the maximum allowable input power value of said power amplifier or below, said transmission power control apparatus comprising:

a classifying part for classifying calls into a plurality of groups;

a power reducing part for reducing a power value individually for each group such that a power value of said calls is equal to or below the maximum allowable input power value of said power amplifier.

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47. A transmission power control method used for a wireless communication apparatus for reducing a power value of a signal of calls input to a power amplifier to the maximum allowable input power value of said power amplifier or below, said transmission power control method comprising the steps of:

classifying calls into a plurality of groups;  
reducing a power value individually for each group such that a power value of said calls is equal to or below the maximum allowable input power value of said power amplifier.

48. The transmission power control method as claimed in claim 47, wherein an upper limit value of power is set for each group, and a power value is reduced to said upper limit value or below for each group.

49. The transmission power control method as claimed in claim 48, wherein said calls are classified according to degree of delay which is allowed by a circuit type of each call.

50. The transmission power control method as claimed in claim 49, wherein said calls are classified into a group of a circuit switching type

and a group of a packet switching type.

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51. The transmission power control method  
as claimed in claim 50, wherein said upper limit  
value for a group of said packet switching type is  
smaller than said upper limit value for a group of  
10 said circuit switching type.

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52. The transmission power control method  
as claimed in claim 50, wherein only a power value  
of a group of said packet switching type is reduced.

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53. The transmission power control method  
as claimed in claim 48, wherein the number of said  
plurality of groups and said upper limit value for  
25 each group are changed according to types of said  
calls.

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54. The transmission power control method  
as claimed in claim 47, comprising the steps of:  
assigning priority for each call according  
to circuit characteristics of said call; and  
35 reducing a power value of a call according  
to said priority.

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55. The transmission power control method  
5 as claimed in claim 54, comprising the steps of:  
assigning said priority such that the  
larger a degree of delay which is allowed by said  
call is, the lower said priority is; and  
reducing each power value of a part of  
10 calls in ascending order of said priority such that  
a power value of calls input to said power amplifier  
is equal to or below the maximum allowable input  
power value of said power amplifier.

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56. The transmission power control method  
as claimed in claim 55, wherein a power value of a  
20 call which has priority within predetermined levels  
from the highest priority is not reduced.

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57. The transmission power control method  
as claimed in claim 54, comprising the steps of:  
assigning said priority such that the  
larger a degree of delay which can be allowed by  
30 said call, the lower said priority is;  
determining at least a power reduction  
subject call from a call having the lowest priority  
in ascending order of priority such that a power  
value of calls input to said power amplifier becomes  
35 equal to or below said maximum allowable input power  
value if it is assumed that each power value of said  
at least a power reduction subject call is reduced

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to a minimum power value which can maintain  
synchronization;

reducing each power value of calls in said  
at least a power reduction subject call other than  
5 calls having the highest priority in said at least a  
power reduction subject call to a minimum power  
value which can maintain synchronization; and

reducing each power value of calls having  
the highest priority in said at least a power  
10 reduction subject call evenly by a predetermined  
ratio such that a power value of calls input to said  
power amplifier becomes equal to or below said  
maximum allowable input power value.

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